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10/537,818	06/06/2005	Martin Jung	272588US0PCT	8550
22850	7590	09/12/2007	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			ORLANDO, MICHAEL N	
1940 DUKE STREET			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			1709	
			NOTIFICATION DATE	DELIVERY MODE
			09/12/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/537,818

Applicant(s)

JUNG ET AL.

Examiner

Michael N. Orlando

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09/27/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. A specific example in which the applicant lists references not listed in the information disclosure statement is found on page 5, lines 22-24.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.

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(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

3. The disclosure is objected to because of the following informalities: The disclosure lacks the proper headings listed above.

Appropriate correction is required.

Examiner's Note

For purposes of examination and absent an official translation of the official document, the examiner has relied upon Schrof et al. US 2003/0175506 as an English language equivalent of the PCT publication Schrof et al. WO01/84544, which was published more than a year before the filing of the applicant's application. The reference is taken to be the equivalent to Schrof et al. WO01/84544, which was published more than a year before the filing of the applicant's application and would therefore be applicable for rejection under U.S.C. 102(b).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 1-9, 11-14 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Schrof et al. US 2003/0175506 (hereinafter '506) or Schrof et al. WO01/84544 (hereinafter '544) either in view of Ha et al. in US 2002/0032251.

Regarding claim 1, Schrof et al. teaches a method of making a laminate (abstract) comprising applying, to at least one substrate ('506: [0093]), a laminating adhesive ('506: [0011]) comprising a polymer comprising free-radically polymerized compounds ('506: [0026]), and bonding the at least one substrate to a transparent film ('506: [0095]) to form a laminate of the at least one substrate and the transparent film

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('506: [0098]). The examiner recognizes the definition of a laminate to be a material constructed by uniting two or more layers of material together. The process of creating a laminate is recognized as laminating, which in common parlance refers to sandwiching something between layers of plastic and sealing them with heat and/or pressure, usually with an adhesive, so as such, the above mentioned adhesive taught by Schrof et al. is considered to be a laminating adhesive. It is further recognized by the examiner that the invention disclosed by Schrof et al. teaches a UV-curable adhesive which can be used to coat a support ('506: [0095]; UV transparent film as a support) and bond said support to a substrate, creating what is by definition a laminate ('506: [0098]). Schrof et al. fails to teach said adhesive also containing compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups wherein the compounds have a weight-average molecular weight of less than 5000 g/mol.

Ha et al. teaches compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups ([0018]) wherein the compounds have a weight-average molecular weight of less than 5000 g/mol ([0070]). It is commonly known to one of ordinary skill in the art and further stated in Ha et al. that the (meth)acrylate functional groups of the reactive diluents are ethylenically unsaturated, free-radically polymerizable groups ([0037]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. to include compounds B) comprising ethylenically unsaturated, free-radically polymerizable groups wherein the compounds

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have a weight-average molecular weight of less than 5000 g/mol in view of Ha et al. because such compounds are known to offer improved viscosity and adhesion ([0031]).

Regarding claim 2, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer is composed of at least 40% by weight of (meth)acrylates ('506: [0028]; [0038]).

Regarding claim 3, the method of claim 1 is taught as seen above. Schrof et al. further teaches the polymer is crosslinkable by irradiation with high-energy light ('506: [0012]).

Regarding claim 4, the method of claim 1 is taught as seen above. Schrof et al. further teaches that attached to the polymer is a photoinitiator ('506: [0012], [0015]).

Regarding claim 5, the method of claim 1, wherein the polymer A) has an average molar weight which is at least twice as high as the molar weight of B) is not explicitly taught in Schrof et al. or Ha et al.. The examiner takes official notice of the fact that although not explicitly stated it would be obvious to of ordinary skill in the art that the polymer made up C₂₀ alkyl (meth)acrylates ('506: [0030]) with attached photoinitiators ('506: i.e. [0021]-[0024]; derivative formula) would more than double the molar weight of compounds B) disclosed by Ha et al ([0070]). Furthermore it is recognized by the examiner that only an upper threshold is designated by Ha et al. ([0070]) indicating it even more likely that said polymer A) exceeds the molar weight of compounds B) by at least a factor of two. It is finally noted by the examiner that although the arguments presented indicate such a value is evident in the prior art the examiner recognizes that the applicant gives no justification as to the benefit afforded

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by such a weight ratio and as such it can also be reasonably concluded that such a weight ratio imparts no functionality and therefore substantially similar results can be attained though other weight ratios.

Regarding claim 6, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer has a K value of from 10 to 90 as measured in a 1% tetrahydrofuran solution at 21.degree. C ('506: [0053]).

Regarding claim 7, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the polymer is a solution polymer ('506: [0011]). It is recognized by the examiner that among the preferred embodiments taught by Schrof et al. is the adhesive coating composition (polymer) in the form of a solution.

Regarding claim 8, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. as an obvious incorporation into the invention taught by Schrof et al. were shown by Ha et al. to have specific properties, which teach that the compounds B) at 21.degree. C. and 1 bar are liquid and have a viscosity of from 0.05 to 50 Pas ([0070]). It is recognized by the examiner that the units of the viscosities need to be converted (1000mPas = 1Pas) in order for their equivalence to be realized. Furthermore, it should be noted that it would have been obvious to one of ordinary skill in the art at the time the invention was made that the use of term diluent in Ha et al. is explicitly referencing a liquid as such is consistent with the termed definition. It is further recognized by the examiner that at the time the invention was made it was commonly known to one of ordinary skill in the art that the viscosity of a liquid is inversely proportional to temperature and varies very minimally in regards to the required 10 fold

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drop needed for the disclosed range in Ha et al. (0.5Pas) to fall out of the claimed range. The examiner recognizes that such a drop would not be feasible with even a large range of temperature change and even less so at a range as small as that between the claimed 21.degrees.C. and the disclosed room temperature (25.degrees.C) in Ha et al.. It is further recognized by the examiner that said viscosity measurement taught by Ha et al. is silent as to any excess pressure present at the time of measurement and as such it is reasonably concluded that said measurement is conducted under normal conditions of atmospheric pressure (1 bar) as would be concluded by one of ordinary skill in the art.

Regarding claim 9, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. in claim 1 as an obvious incorporation into the invention taught by Schrof et al. were taught by Ha et al. to have specific properties, which teach that the compounds B) comprise from 1 to 5 polymerizable groups per molecule ([0079], [0085]). It is recognized by the examiner that the reactive diluents disclosed by Ha et al. are equivalents to the compounds B) claimed by applicant in that they are shown to be ethylenically unsaturated, free-radically polymerizable groups wherein the compounds have a weight-average molecular weight Mw of less than 5000 g/mol. Furthermore, it is recognized by the examiner that the reference to the term "groups" ([0085]) is a specific reference to the functional groups on the acrylate functional diluent as is consistent with the terminology and inventive entity disclosed in Ha et al..

Regarding claim 11, the method of claim 1 is taught as seen above. The compounds taught by Ha et al. in claim 1 as an obvious incorporation into the invention

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taught by Schrof et al. were taught by Ha et al. to have specific properties, which teach that the compounds B) are (meth)acrylic esters of polyhydric, unalkoxylated or alkoxylated alcohols ([0079]). The examiner recognizes that the disclosed ethoxyethoxy-ethyl acrylate in Ha et al. as one of the preferred monomers would satisfy as a (meth)acrylic ester.

Regarding claim 12, the method of claim 1 is taught as seen above. Schrof et al. fails to explicitly teach the method of claim 1, wherein the weight fraction of the compounds B) is from 5 to 70% by weight, based on the total weight of A)+B).

The compounds taught by Ha et al. as an obvious incorporation into the invention taught by Schrof et al. were shown by Ha et al. to have specific properties wherein having the weight fraction of the compounds B) is from 5 to 70% by weight, based on the total weight of A)+B) would have been obvious. Ha et al. teaches that the addition of the acrylate functional reactive diluents (compounds B)) can be adjusted in both types and amounts added to achieve optimal viscosity and adhesion as it pertains to the ultimate intended use of the product ([0031]). It is further taught by Ha et al. that the acrylate functional reactive diluents (compounds B)) are preferably added at an amount of 5 to 70% by weight ([0078]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. to include the weight fraction of the compounds B) as 5 to 70% by weight, based on the total weight of A)+B) in view of Ha et al. because it is was known that the acrylate functional reactive diluents can be added in any ratio and amount to aid in improving viscosity and adhesion ([0031]).

Regarding claim 13, the method of claim 1 is taught as seen above. Schrof et al. further teaches the laminating adhesive comprising from 0.0001 to 1 mol of a photoinitiator or photoinitiator group per 100 g of the total weight of polymer A) and compounds B) ('506: [0013]). The examiner recognizes that the disclosed values are based solely upon the ratio of the photoinitiator to polymer A); however, it is noted that even if B) were to take up a majority of the laminating adhesive as an additive compound it would still allow the photoinitiator to fall within the disclosed range as would be commonly understood to one with ordinary skill in the art. As proof of concept the examiner recognizes that were B) to encompass 70% of the overall composition (maximum threshold disclosed by applicant) and there was 1 mol of photoinitiator per 100g of A) as discussed above than the overall amount of photoinitiator would still be at 0.3 mol per 100g of A) and B), well within the accepted range.

Regarding claim 14, the method of claim 1 is taught as seen above. Schrof et al. further teaches the laminating adhesive comprising less than 5 parts by weight of water or solvent, based on 100 parts by weight of the total weight of A) and B) ('506: [0060]).

Regarding claim 16, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the transparent film carries print ('506: [0069]). It is recognized by the examiner that the films listed are further defined as being UV transparent ('506: [0095]).

Regarding claim 17, the method of claim 1 is taught as seen above. It is recognized by the examiner that the laminate produced by the method of claim 1 would have been obvious due to the nature of the inventions disclosed in Schrof et al. and Ha

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et al.. Schrof discloses a laminate produced by the method of claim 1, but fails to teach the laminate would further contain compounds B); however, such compounds were known in the art at the time the invention was made and shown to be an obvious incorporation as discussed above in claim 1 rejection. It is therefore concluded that such a laminate would have been obvious and the method of producing that laminate would likewise have been obvious.

Regarding claim 18, the method of claim 1 is taught as seen above. Schrof et al. further teaches that the transparent film is transparent to UV light ('506: [0095]).

Regarding claim 19, the method of claim 1 is taught as seen above. The examiner recognizes that it is obvious that since both applicant and Schrof et al. teach the use of the same films ('506: [0068], [0069], [0091]) that both would possess the same properties (i.e. transparent to electron beams). Furthermore, it is recognized by the examiner that electron beams are merely another form of high-energy light and would perform substantially the same function as the UV induced crosslinking through UV transparent films disclosed by Schrof et al. above.

Regarding claim 20, the method of claim 1 is taught as seen above. Schrof et al. further teaches the method comprising irradiating the transparent film with high-energy light ('506: [0085]). It is recognized by the examiner that as discussed in claim 18 above, Schrof et al. utilizes the use of UV transparent film as supports for the laminating adhesive, which are meant to be irradiated with high-energy (i.e. UV) light in order to bring about crosslinking ('506: [0085]).

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8. Claim 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Schrof et al. US 2003/0175506 (hereinafter '506) or Schrof et al. WO01/84544 (hereinafter '544) either in view of Ha et al. in US 2002/0032251 and further in view of Higbie et al. US 5,110,889.

Regarding claim 10, the method of claim 1 is taught as seen above. The compounds B) taught by Ha et al. in claim 1 as an obvious incorporation into the invention taught by Schrof et al. were taught to have acrylate functionality as discussed above. Schrof et al. in view of Ha et al. fail to specifically teach the polymerizable groups of compounds B) as acryloyl or methacryloyl groups.

Higbie et al. teaches the process of acrylation being alternatively carried out by a procedure using acryloyl chloride in the process of generating radiation curable diluents (column 7, lines 66-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Schrof et al. in view of Ha et al. and further in view of Higbie et al. because the above mentioned acryloyls are known to be an equivalent to the acrylates used by Ha et al. as polymerizable groups. It is recognized by the examiner that the applicant has not provided sufficient evidence to suggest the contrary and as such it has been concluded that acrylate groups, which are known to also be ethylenically unsaturated and useful in polymerization, would perform substantially the same function.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael N. Orlando whose telephone number is (571)-270-5038. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571)272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MO


JOSEPH DEL SOLE
SUPERVISORY PATENT EXAMINER

9/5/07